



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 10

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OFFICE OF
WATER AND WATERSHEDS

July 11, 2013

Kevin Freeman
Project Coordinator
ARCADIS
695 N. Legacy Ridge Drive, Suite 200
Liberty Lake, WA 99019

Re: Comments Regarding Draft Dairy Facility Application Field Management Plans,
Administrative Order on Consent ("Consent Order")
Docket No. SDWA-10-2013-0080
Yakima Valley Dairies, Washington

Dear Mr. Freeman:

The U.S. Environmental Protection Agency, Region 10 ("EPA") has completed its review of three draft plans:

- Cow Palace, LLC - Dairy Facility Application Field Management Plan, dated May 20, 2013
- George DeRuyter & Son Dairy, LLC - Dairy Facility Application Field Management Plan, dated May 20, 2013
- Liberty Dairy, LLC - Dairy Facility Application Field Management Plan, dated May 20, 2013

EPA has the following comments which pertain to all three Application Field Management Plans ("AFMP") except as otherwise noted below:

General Comments

1. Section III.F.1.f of the Consent Order Statement of Work (SOW) states, "Within six months and twelve months of the Effective Date and within a month of the anniversaries of those dates for eight years, Respondents shall collect samples of manure liquids and solids twice a year from each Dairy Facility in accordance with the EPA-approved Dairy Facility Application Field Management Plan." This item is briefly referenced in Section 1.3.2 and in Appendix A Section 1.3 of the AFMPs. These two types of sampling are unique from the application field soil sampling, and have not been appropriately incorporated into the other sections of the document. They must be incorporated. A description of how these data will be used in conjunction with the application field soil nitrate data to improve nitrogen application to application fields that do not meet the 45 ppm nitrate-N benchmark must be added.
2. The AFMPs refer specifically to Arcadis personnel in several sections, yet it is not clear whether only Arcadis personnel will be conducting the field work/sample collection. The

AFMPs must specify that Arcadis personnel will be present in the field for all sampling events conducted under the AFMPs.

Specific Comments

1. Plan approval page. Add dates alongside the plan approval signatures.
2. Section 1.3.1 – Project/Task Description. In the first bullet, there is a typo. Change the word “form” to “from.”
3. Section 2.1.1 - Sampling Design Rationale. It is unclear how Management Units would be evaluated and how the Sampling Units relate to the Management Units. Please indicate in the text how those decisions will be described and documented, and when that will be done. The text must be revised to state that any further subdivision of the Sampling Units into smaller Management Units will require approval from EPA.
4. Section 2.1.2 - Sample Strategy and Design.
 - a. Subsample intervals are required to “... include 12 inches, 24 inches, and 36 inches (36 inch interval for fall post-harvest only).” To enhance clarity, change the word “include” to “taken at.” Specify precisely that the 12 inch subsample will be a composite collected from 0 to 12 inches, the 24 inch subsample will be a composite collected from 12 to 24 inches, and the 36 inch subsample will be a composite collected from 24 to 36 inches.
 - b. The numbers of subsamples (bulleted list) is inconsistent with the Consent Order Statement of Work and with Appendix B, Step 7. Change the list so it is consistent with the Consent Order Statement of Work at Section III.F.1.b.(3)(b).
5. Section 2.1.3 – Sample Types, Locations, and Frequencies. Delete the sentence, “Where soil depth is limited by an impermeable caliche or rock layer, the maximum sampling depth will be determined by the depth of that layer and recorded in the field sampling documents.” Replace with: “At any sampling location where soil is difficult to dig through, documentation will be provided to EPA that shows that at least three hand tools designed for digging through hard soils were employed in an effort to reach the required sample depth.” Caliche is not impermeable, and EPA encountered no shallow rock layers when drilling monitoring wells in the area.
6. Section 2.2 - Sampling Methods (B2). Several sampling procedures are referenced in this section. This plan must select one method or state that the method that is described in detail in this plan is generally based on all the procedures referenced here. If the latter is the case, then add a separate appendix that clearly and completely describes the method that will be followed. The AFMP must clearly describe each sampling method to be used.

7. Section 2.3.2 - Sample Chain-of-Custody (page 11).
 - a. In the second-to-last paragraph of this section, the laboratory's sample custodian's name, Ms. Kay Duvall, must be followed by "or her designee."
 - b. This paragraph also states that samples will be shipped overnight due to the 48-hour hold time of nitrate. However, according to Table 3, all sample analyses have a 48-hour hold time if samples are held at $\leq 4^{\circ}\text{C}$ or indefinitely at -20°C . Clarify this discrepancy.
8. Section 2.4 - Analytical Methods (page 11-12). The method listed for electrical conductivity is incorrect and must be revised to reference an appropriate WCC electrical conductivity method (i.e., S-2.30 or S-2.40).
9. Section 2.5.2 - Laboratory Quality Control Procedures (page 12). This section states that several laboratory QC procedures will be conducted in accordance with EPA methods. However, there will be no EPA methods used for sample analysis in this project. Revise this section appropriately to clarify.
10. Section 3.1 - Assessments and Response Actions (page 14).
 - a. The second sentence in the second paragraph of this section makes reference to EPA Methods. However, since there will be no EPA methods used for sample analysis in this project, revise this section appropriately.
 - b. Revise the second sentence of the second paragraph to read: "Through their contract(s) with Soiltest, the Dairies will require Soiltest to comply with...."
11. Section 3.2.1- Dairy Facility Application Field Reports (page 14). The section must include a statement that data will be included in reports. Revise the last sentence to include data, as follows-- "Dairy Facility Application Field Reports will include a summary of data, data quality control and quality assurance activities...."
12. Section 3.2.2 - Analytical Data Reporting (page 16). In the last sentence of this section, there is a typographical error. Change the word "repor" to "report."
13. Section 4.1 - Data Review, Verification, and Validation (page 16). The second sentence in this section makes reference to EPA Methods. However, since there will be no EPA methods used for sample analysis in this project, revise appropriately. Also, the word "validation" must be deleted from the sentence.
14. Section 4.2 - Verification and Validation Methods (page 17).
 - a. In the first sentence of the last paragraph in this section, the word "validated" must be changed to "verified." The sentence should read, "The analytical data generated shall be reduced, verified, and reported by the laboratory..."

b. Also in the first sentence of the last paragraph, there is a reference to EPA methods. Since there will be no EPA methods used for sample analysis in this project, revise appropriately.

15. Table 1 – Application Field Summary Table.

a. Add columns to Table 1 that show the number of subsamples that must be collected from each field based on its size, the depth of the samples [0 to 12 inches, 12 to 24 inches, or 24 to 36 inches, and when each type is to be taken (spring and/or fall)].

b. Table 1 of the Cow Palace AFMP does not match the figures. Replace it with the correct table. *This comment pertains only to the Cow Palace AFMP.*

c. In the first column, it appears that some sampling designation units have been omitted. Why are LD-SU-1, LD-SU-11, LD-SU-12, LD-SU-13, and LD-SU-15 missing from the table? Add these into the table, or add clarifying text in the document explaining why they are absent, or re-number the sampling units. *This comment pertains only to the Liberty Dairy, LLC AFMP.*

d. LD-SU-14 does not appear on the map at Figure 2. Add it to the map. *This comment pertains only to the Liberty Dairy, LLC AFMP.*

16. Table 2 - Data Needs. Method WCC S-9.10, which is listed for soil organic matter analysis, determines organic matter as a percentage; therefore, the associated units should also be reported as a percentage. Revise the AFMP accordingly.

17. Table 3 - Analytes, Methods, Holding Times, and Preservation

a. The method listed for electrical conductivity (i.e., WCC S-2.20) is incorrect. Change this method to an appropriate WCC method.

b. The method listed for nitrate (i.e., WCC S-3.30) is different from the method listed in sections 2.3.2 and 2.4. Correct this discrepancy.

c. Add the appropriate units for the reporting limit listed for phosphorus.

d. The method listed for soil organic matter (i.e., WCC S-9.10) determines organic matter as a percentage. Therefore, the reporting limit must be reported as a percentage. Revise the AFMP accordingly.

e. In the hold time column, it is difficult to see the negative sign that precedes the 20°C. Enhance the negative sign to ensure that the proper temperature criteria are followed.

18. Appendix A (page 1). "Fertilzer Application Practices" is misspelled in the title. Correct the typo.

19. Appendix A, Section 1 – Fertilizer Application. Change the first sentence to, "All applications of liquid or solid manure and synthetic fertilizers will be in accordance with the current NRCS Practice Standard 590 which is found in the local Field Office Technical Guide."

20. Appendix A, Section 1.3 – Nutrient Application (page 2).

a. Change the word "should" in the last sentence to the word "will" so that the sentence states, "Samples will be taken each spring and fall just prior to or at the same time as soil sampling to evaluate nutrient control."

b. Add the following sentence to the end of the paragraph: "All types of waste applied to the fields will be sampled, whether solid, liquid, slurry, or compost."

c. Change the word "should" to the word "will" in the last sentences of Section 1.3.1 and Section 1.3.2 so that they state, "If same day shipping is not feasible, then the samples will be refrigerated."

21. Appendix A, Section 1.3.3 – Determination of Available Nutrient Levels (page 2).

a. Delete the second sentences, which reads, "Application of manure is allowed on crop fields only if the "post-harvest" soil sample nitrate (as nitrogen, NO₃-N) levels are at 45 parts per million (ppm) or below in the second foot." This requirement pertains only to waste that is exported. Change this sentence to, "For each field where the "pre-planting" or "post-harvest" representative soil sample collected at the 24" depth below ground surface exceeds NO₃-N, a certified nutrient management planner will be employed to manage the field with the goal of achieving the 45 ppm NO₃-N at the 24" depth." This language is consistent with the Consent Order Statement of Work at Section III.F.1.d.

b. Delete the third sentence, which reads, "However, if the spring soil sample is within the compliance standard, then agronomic rates could be applied following the above criteria of application." This sentence is not consistent with the Consent Order SOW. The Washington Department of Agriculture uses a post-harvest soil sample at the 24" depth, and compares the results to a benchmark level of 45 ppm, to evaluate whether nitrogen has been over-applied to a field. Achieving this benchmark level in the spring or the fall does not ensure protection of groundwater. If an annual crop is grown in the field, any nitrate at the 24" depth in either the spring or fall is going to be flushed downward toward the groundwater.

22. Appendix A, Section 1.3.4 – Off-Site Application of liquid and solid manures.

a. The second sentence is not consistent with the Consent Order. Change the second sentence to, "Applications of liquid and solid manures are allowed on crop fields only if

the second foot NO₃-N levels are at 45 ppm or below in the grower's most recent post-harvest soil sample." This is consistent with Consent Order SOW Section III.F.7.

b. Change the last sentence to state, "Records of off-site liquid or solid manure applications will be maintained and reported to EPA in the annual reports." This is consistent with Consent Order SOW Section III.F.7.

23. Appendix A, Section 1.3.5 – Manure Application Methods.

a. Change the text in the "Liquid Manure" subsection to state, "If liquid manure is applied through an existing irrigation system, then the total gallons of application will be measured. Application rates will be as directed by the certified nutrient management planner, agronomist or soil scientist. If liquid is applied via a tanker truck or other spreading implement, then a calibration of the gallons applied per specified unit of area will be made to ensure application does not exceed the rate specified by the certified nutrient management planner, agronomist or soil scientist. The applicator shall maintain a tracking log to record the number of truckloads applied per acre in each field." Calibration is important because being able to calculate the amount of nitrogen per truckload, in combination with the number of truckloads per acre, enables evaluation of whether waste was applied in accordance with the amount that was planned.

b. Change the sentence in the "Solid Manure" subsection to state, "If solid manures are applied via a truck or spreading implement, a specific calibration will be made before application to ensure that rates specified by the certified nutrient management planner, agronomist or soil scientist are not exceeded. The applicator shall maintain a tracking log to record the number of truckloads applied per acre in each field."

24. Appendix B – Data Quality Objectives.

a. Step 2 - Identify the Decision. Revise the second bullet to: "In each application field, do post-harvest soil nitrate concentrations at 2 feet below ground surface (bgs) exceed the 45 ppm standard?"

b. Step 5 - Develop a Decision Rule. A decision rule for this document is provided by the Consent Order. Delete the second decision rule and replace it with the decision rule in the Consent Order Statement of Work Section I.F.1.d: "For each field where the "pre-planting" or "post-harvest" representative soil sample collected at the 24" depth exceeds 45 ppm NO₃-N, the Dairy will employ a certified nutrient management planner, agronomist, or soil scientist to manage the field with the goal of achieving 45 ppm NO₃-N at the 24" depth." A key concept is active management of fields that exceed 45 ppm, rather than just consultation.

c. Step 6 - In the second paragraph of Step 6, there is a reference to analytical methods specified in Section 2.5.2 of the AFMP. There are no analytical methods specified in this section. Change the reference to "Section 2.4."

d. Step 7 - Develop the Plan for Obtaining Data.

(1) It is unclear what this statement means -- "If an application field is divided into Management Units, then the SUs will correspond to the particular Management Units contained by that application field." Note that this is also related to another comment above related to section 2.1.1. Revise to make clear.

(2) Note that the AFMP calls for 20 subsamples in this section, but in the text it had been changed to some other minimum number of samples. Twenty subsamples is the minimum number of subsamples; correct the discrepancy in the main text of the AFMP.

(3) The AFMP must include an example of a "Dairy Facility Application Field Report" or, if these are meant to be the "Fertility Sampling Worksheets" which are included in Appendix D, then reference them by the same exact name.

25. Appendix E – Surface and Subsurface Soil Sampling Using Manual Methods

a. This appendix refers to a Field Sampling Plan ("FSP") or Work Plan. All details regarding the field work associated with the AFMP must be contained in the AFMP, or, if a separate FSP is appropriate, the AFMP must include a schedule for submission of the FSP to EPA for approval in accordance with the Consent Order.

b. Section II – Personnel Qualifications. The requirements for the field personnel seem to be reversed or unclear. Review this paragraph and revise as appropriate.

c. Section II – Personnel Qualifications. The minimum qualification of the ARCADIS personnel leading or supporting soil sampling must be clarified. Replace the word "should" with the word "must" in the following sentences so that they state, "ARCADIS personnel directing, supervising, or leading soil sampling activities must have a minimum of 2 years of previous environmental soil sampling experience. ARCADIS personnel providing assistance to soil sample collection and associated activities must have a minimum of 6 months of related experience or an advanced degree in environmental sciences."

d. Section II – Personnel Qualifications. Add this sentence: "All field personnel will be trained to collect samples in a manner consistent with this AFMP."

26. Appendix F. Section VI - Procedure. Delete the first use of the word "by" from the sentence as follows: "Divide the circular pile *by* into equal quarters by dividing out two diameters at right angles." (Emphasis added).

27. Appendix I – Field Log Book Entries SOP. The majority of this SOP is missing from the AFMP. Add the missing materials. *This comment pertains to the Cow Palace AFMP and the George DeRuyter & Son Dairy AFMP only.*

The revised AFMPs must be submitted to EPA within 30 days of your receipt of this letter. You may contact me at (206) 553-6904, or your legal counsel may contact Jennifer MacDonald at (206) 553-8311, if you have any questions regarding this letter.

Sincerely,



Eric Winiecki
EPA Project Coordinator
Office of Water and Watersheds

cc: Jennifer MacDonald
Rene Fuentes